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The value of y indicates that the obliquity assumed in Hansen's and Olufsen's Tables ought to be diminished by $0''.5003$.

The value of z shows that the mean of the observed distances from the pole to the ecliptic is too great by $0''.8824$.

The corrections to the principal systems of right ascensions resulting from this discussion of Washington observations of the Sun are as follows:—

Washington (1875–1883) — American Ephemeris (Newcomb)	^s = -0.016
— Berliner Jahrbuch (Auwers)	= 0.000
— Greenwich (1880)	= $+0.026$
— Pulkowa (1845)	= $+0.003$
— Pulkowa (1865)	= -0.052
— Conn. des Temps (1883)	= $+0.029$

Blackheath: July 1889.

Preliminary Spectroscopic Survey of Southern Stars, made at the Melbourne Observatory with a Maclean direct-vision Spectroscope on the 8-inch Equatorial.

(Communicated by R. L. J. Ellery.)

This survey is a rough reconnaissance preliminary to a more thorough examination of the spectra of southern stars it is intended to make by aid of the 4-foot reflector, and higher power spectroscopes. The list contains a hundred stars examined to the present time. The star-places are brought up to the epoch 1890, and the descriptions are copied from the actual notes taken at the time by Mr. P. Baracchi, assistant, who made the observations.

The “Maclean Spectroscope” while transmitting a maximum of light has low power, and, except in the case of red stars, is insufficient for stars below the 5th magnitude. For this reason, in the spectra of many stars of the 4th and 5th magnitude of Class II. (a) (Vogel Classification) no dark lines could be seen with certainty, and these are entered as having a continuous spectrum, while there can be little doubt fine dark lines will be seen with higher spectroscopic power. The Fraunhofer lines are freely made use of in the description, more for the sake of brevity than any pretension to accurate location of the features seen in the spectrum.

It is, however, hoped that even in this preliminary form the survey, when completed, will be of great use in mapping out theoretical outlines concerning the spectra of the southern stars, also in facilitating the spectroscopic work to be done with the great telescope, and, probably the most important of all, the detection of red stars.

No.	Name of Star.	R.A. 1890. h m s	N.P.D. 1890. ° ' "	Description of Spectrum.
1	γ Argus	8 6 8	137 1	Spectrum with four bright lines. One in the blue about C, very bright. One in the green, also very bright. Two in the yellow, the one of which on the side of the red is very faint and the other very bright.
2	ϵ Argus	8 20 15	149 9	Dark line in the orange, dark line in the red, both conspicuous. Many other extremely faint dark lines.
3	δ Argus	8 41 40	144 18	Spectrum with two dark lines. One in the middle of the green, and the other in the blue. Green colour abundant. Very little red. Yellow almost absent.
4	β Argus	9 12 1	159 16	Spectrum with two dark lines. One in the middle of the green, thick; the other in the blue, also thick.
5	ι Argus	9 14 9	148 49	Spectrum with dark lines. One about F; one about G. Both conspicuous. Others extremely fine and faint.
6	κ Argus	9 18 43	144 33	Continuous spectrum. Green and blue abundant.
7	η Crucis	12 1 9	154 0	Continuous spectrum. Green and blue abundant. Hardly any yellow.
8	α Corvi	12 2 44	114 7	Dark line about F. Blue abundant. Hardly any yellow.
9	ϵ Corvi	12 4 28	112 0	Suspect extremely faint line about D, and some lines in the blue.
10	δ Crucis	12 9 18	148 8	Continuous spectrum.
11	γ Corvi	12 10 9	106 56	Spectrum with two thick prominent dark lines. One about G, the other in the extreme violet. Violet colour abundant.
12	ϵ Crucis	12 15 27	149 48	Continuous spectrum.
13	α Crucis	12 20 29	152 29	Spectrum with two dark thick lines. One about F; one about G.
14	δ Corvi	12 24 10	105 54	Spectrum with two very thick and black lines. One about G; the other at the end of the violet.
15	γ Crucis	12 25 4	146 29	Spectrum with flutings fading away gradually towards the red end. Two of these are in the red, very intense. One in the yellow, rather faint. Three in the blue, very prominent, and one, somewhat faint, in the green. Fine dark lines in the violet. Flutings easily resolved into dark lines grouped closer and closer together towards the violet end of the spectrum, where they terminate abruptly.

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No.	Name of Star.	R.A. 1890. h m s	N.P.D. 1890. ° ′	Description of Spectrum.
16	γ Muscæ	12 25 55	161 31	Continuous spectrum.
17	η Corvi	12 26 24	105 35	Spectrum with only one dark line about G. Very little yellow. Blue predominates.
18	β Corvi	12 28 36	112 47	Spectrum with only one extremely dark faint line about C. Not well seen.
19	α Muscæ	12 30 38	158 32	Continuous spectrum.
20	β Muscæ	12 39 36	157 30	Spectrum with extremely faint lines in the blue and violet.
21	β Crucis	12 41 18	149 5	Continuous spectrum.
22	δ Muscæ	12 54 41	160 57	Continuous spectrum.
23	α Virginis	13 19 23	100 35	Continuous spectrum. Dividing spectrum in ten parts, four are violet, one blue, two green, one yellow and orange, two red. On one first-class night fine lines (dark) were suspected. Examined several times.
24	ϵ Centauri	13 32 55	142 54	Spectrum with very fine lines all over. Faintly seen.
25	ν Centauri	13 42 55	131 8	Continuous spectrum.
26	μ Centauri	13 43 0	131 56	Continuous spectrum.
27	κ Centauri	13 45 29	122 27	Continuous spectrum.
28	ζ Centauri	13 48 41	136 45	Continuous spectrum.
29	ϕ Centauri	13 51 35	131 34	Spectrum with very fine dark lines. Difficult.
30	β Centauri	13 56 4	149 50	?
31	θ Centauri	14 0 13	125 49	Faint dark line about D. Several very fine lines in the blue.
32	ι Lupi	14 12 22	135 33	Continuous spectrum.
33	η Sagittarii	14 28 32	131 40	Continuous spectrum.
34	α Centauri	14 32 6	150 22	Spectrum with very many dark lines all over. Dark lines about C, D, and G thick and conspicuous.

No.	Name of Star.	R.A. 1890. h m s	N.P.D. 1890.	Description of Spectrum.
35	α Apodis	14 34 14	168 34	Spectrum with dark lines about D, b, F, and G all very faintly seen.
36	α Circini	14 33 39	154 30	Spectrum with many very fine lines all over. One dark line about F conspicuous. The fine lines are better defined and more easily seen in the red and orange than elsewhere. Blue colour predominates.
37	σ Lupi	14 34 37	136 55	Spectrum with very faint dark lines. Difficult.
38	β Lupi	14 51 20	132 41	Continuous spectrum.
39	κ Centauri	14 52 1	131 40	Continuous spectrum.
40	20 Libræ	14 57 40	114 51	Spectrum with flutings like γ Crucis. Three of these are in the red, the most intense of all. Two fainter ones in the green. One very prominent about G. Three in the violet very broad, but not so dark as those in the red. Fine dark lines interspersed.
41	ζ Lupi	15 4 25	141 40	Spectrum with very fine lines (suspected) all over.
42	γ Triang. Aust.	15 8 40	158 16	Spectrum with many faint dark lines. One about F conspicuous. Red and yellow in extremely small proportions.
43	δ Lupi	15 14 9	130 15	Continuous spectrum.
44	ϵ Lupi	15 15 13	134 17	Continuous spectrum.
45	γ Lupi	15 27 49	130 48	Continuous spectrum.
46	39 Libræ	15 30 20	117 46	Spectrum with dark bands in the green and blue (not easily seen). Faint dark line about D.
47	40 Libræ	15 31 54	119 25	Spectrum with a dark line about G and one about F. The blue extends over the greater part of the spectrum.
48	χ Lupi	15 43 58	123 17	Spectrum with a dark band about G. Blue predominates.
49	ξ Lupi	15 49 52	123 39	Very faint spectrum. Dark lines about F and G well seen. Other fainter dark lines very difficult.
50	ρ Lupi	15 50 5	118 55	Spectrum like that of ξ Lupi.

No.	Name of Star.	R.A. 1890. h m s	N.P.D. 1890. ° ′	Description of Spectrum.
51	π Scorp <i>ii</i>	15 52 11	115 48	Spectrum with very fine lines. Uncertain. Violet predominates. Hardly any yellow.
52	η Lupi	15 52 50	128 5	Continuous spectrum. Blue predominates.
53	δ Scorp <i>ii</i>	15 53 48	112 18	Continuous spectrum.
54	β' Scorp <i>ii</i>	15 59 2	109 30	Spectrum with faint dark lines in the blue and violet. Violet abounds.
55	θ Lupi	15 59 22	126 30	Continuous spectrum.
56	ω^1 Scorp <i>ii</i>	16 0 23	110 22	Continuous spectrum. Blue and green predominate.
57	ω^2 Scorp <i>ii</i>	16 0 37	110 34	Spectrum with extremely fine lines all over. Very faintly seen.
58	δ Triang. Aust.	16 5 26	153 24	?
59	ν Scorp <i>ii</i>	16 5 36	109 10	Spectrum with several faint dark lines in the red and orange, and one more prominent about G.
60	α Scorp <i>ii</i>	16 22 40	116 11	Spectrum with many dark lines, very thick and numerous in the red.
61	ϕ Ophiuchi	16 24 51	106 22	Continuous spectrum. Red very intense and in large proportion. Violet almost absent.
62	ζ Ophiuchi	16 31 6	100 21	Continuous spectrum.
63	α Triang. Aust.	16 37 1	158 49	Spectrum with a great many faint dark lines very difficult to see. One dark line in the yellow more prominent.
64	η Arae	16 40 17	148 51	Spectrum with very faint dark lines about C and F. Very little yellow.
65	ϵ Scorp <i>ii</i>	16 43 3	124 6	Continuous spectrum.
66	μ^1 Scorp <i>ii</i>	16 44 25	127 51	Continuous spectrum.
67	μ^2 Scorp <i>ii</i>	16 44 53	127 50	Continuous spectrum.
68	ζ^1 Scorp <i>ii</i>	16 46 14	132 16	Continuous spectrum.
69	ζ^2 Scorp <i>ii</i>	16 46 50	132 10	Continuous spectrum.
70	ζ Arae	16 49 31	145 49	Spectrum with a dark line about D well seen; another about G suspected.

No.	Name of Star.	E.A. 1890. h m s	N.P.D. 1890. °	Description of Spectrum.
71	ϵ^1 Aræ	16 50 49	142 59	Spectrum with extremely fine lines in the green; also very fine dark line about G.
72	η Scorpii	17 4 16	133 5	Continuous spectrum.
73	ν Serpentis	17 14 38	102 44	Spectrum with a dark line about C. Difficult thick dark band about G, and a similar one towards the end of the violet.
74	β Aræ	17 16 9	145 25	Spectrum with dark lines about C, F, and G. One dark line in the yellow. C line difficult. Other faint lines suspected.
75	δ Aræ	17 21 11	150 35	Spectrum with very fine dark lines between F and G. Fine dark line about b . Dark band about G.
76	λ Scorpii	17 26 8	127 1	Faint dark lines in the red and orange. Dark line about G. Several other fainter lines difficult to see.
77	θ Scorpii	17 29 25	132 56	Spectrum with a dark line near F, and one in the orange.
78	η Pavonis	17 34 56	154 40	Continuous spectrum.
79	κ Scorpii	17 34 52	128 58	Continuous spectrum.
80	σ Serpentis	17 35 14	102 49	Spectrum with faint dark line about C. Dark band about G, and a similar one in the violet. No line about F can be seen.
81	ι Scorpii	17 39 54	130 5	Continuous spectrum. Faint lines only suspected.
82	γ^1 Sagittarii	17 58 0	119 35	Continuous spectrum.
83	γ^2 Sagittarii	17 58 44	120 25	Continuous spectrum.
84	η Sagittarii	18 10 11	126 47	Spectrum with flutings fading away towards the red end. Two of these are in the red, very intense; two in the violet, also very intense, and one about G.
85	δ Sagittarii	18 13 57	119 52	Spectrum with extremely fine dark lines, uncertain.
86	ϵ Sagittarii	18 16 52	124 26	Spectrum with two dark bands; one about G, and one in the violet. Look like two single lines very thick and dark, but they give the idea of being formed by a group of dark lines close together. This remark applies to all cases where dark bands are mentioned.

No.	Name of Star.	R.A. 1890. h m s	N.P.D. 1890. ° ' "	Description of Spectrum.
87	λ Sagittarii	18 21 11	115 29	Continuous spectrum. Yellow in extremely small proportion.
88	ϕ Sagittarii	18 38 47	117 6	Spectrum with a dark line about G, the only line distinctly seen. Others faint and uncertain.
89	σ Sagittarii	18 48 26	116 26	Spectrum with a dark line about F. One about G, and several between G and H.
90	ξ Sagittarii	18 51 10	111 15	Spectrum with very fine lines in the blue and violet.
91	\omicron Sagittarii	18 58 5	111 54	Continuous spectrum.
92	τ Sagittarii	19 0 4	117 50	Spectrum with fine dark lines in the blue and violet.
93	π Sagittarii	19 3 13	111 12	Spectrum with a dark line about F. One about G. Several in the violet.
94	α Pavonis	20 16 56	147 5	Spectrum with very fine faint dark lines in the blue, violet, orange, and red. None seen in the yellow or green.
95	β Pavonis	20 35 3	156 36	Spectrum with a dark band in the violet. One distinct group of dark thick lines about F and a similar one about G. Several extremely fine lines between E and F. Green colour predominates. Yellow almost absent.
96	β Indi	20 46 13	148 52	Continuous spectrum. Yellow hardly seen.
97	γ Gruis	21 47 16	127 53	Spectrum with a faint dark line about C. Fine dark lines between E and δ . Dark band or group of thick dark lines about F, a similar one about G, and another in the violet. Typical hydrogen lines. Violet predominates.
98	α Gruis	22 1 18	137 30	Spectrum with a faint dark line about C. Thick dark bands or groups of lines about F and G. One faint dark line about δ . Several faint dark lines between G and H and beyond H.
99	δ^1 Gruis	22 22 42	134 2	Spectrum with two dark lines. One about F. One about G. No other line seen.
100	δ^2 Gruis	22 23 12	134 17	Spectrum with fluings like γ Crucis. Two of these are in the red, three in the blue, several in the violet, one in the yellow. Those in the red and blue are very striking. Fine dark lines in all colours.

Observations of Comets *d*, 1889 (*Brooks*), and *e*, 1889 (*Davidson*), made at the Royal Observatory, Greenwich.
(Communicated by the Astronomer Royal.)

The observations on August 5, August 28, August 29, and September 25 were made with the East or Sheepshanks Equatorial, aperture 6·7 inches; and those on August 30 with the Lassell Reflector, aperture 24 inches, by taking transits over two cross-wires at right angles to each other, and each inclined 45° to the parallel of declination.

Comet *d*, 1889 (*Brooks*).

Greenwich Mean Solar Time. 1889. d h m s	Observer.	R.A. m s	Corr. for Par. Refraction s	N.P.D. ° ' "	Corr. for Par. Refraction "	No. of Comp.	Apparent R.A.			Apparent N.P.D.			Comp. Star.
							h	m	s	°	'	"	
Sept. 25 9 11 15	H.	+ 1 32·96	- 0·22 0 00	+ 0 3·2	- 7·6 0 0	6	23	51	1·53	95	16	49·4	<i>a</i>

Mean Place of Comparison Star.

<i>a</i>	Star's Name.	R.A., 1889°.			Authority.
		h	m	s	
	W. B. XXIII. 973	23	49	26·34	Weisse's Bessel.
				95° 17' 9·6"	

Notes.

The comet was exceedingly faint. No nucleus and no appearance of a part detached.
The observations are corrected for parallax and refraction.